

### BYM13-20 thru BYM13-60, SGL41-20 thru SGL41-60

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### Vishay General Semiconductor

### **Surface Mount Schottky Barrier Rectifier**



**DO-213AB** 

PRIMARY CHARACTERISTICS						
I <sub>F(AV)</sub> 1.0 A						
$V_{RRM}$	20 V to 60 V					
I <sub>FSM</sub>	30 A					
V <sub>F</sub>	0.50 V, 0.70 V					
T <sub>J</sub> max.	125 °C, 150 °C					

#### **FEATURES**

- · MELF Schottky rectifier
- · Ideal for automated placement
- Guardring for overvoltage protection
- Low power losses, high efficiency
- Low forward voltage drop
- Low lorward voltage dro
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 250 °C
- AEC-Q101 qualified
- Material categorization: For definitions of compliance please see <a href="https://www.vishav.com/doc?99912"><u>www.vishav.com/doc?99912</u></a>

#### **TYPICAL APPLICATIONS**

For use in low voltage high frequency inverters, freewheeling, DC/DC converters, and polarity protection applications

#### **MECHANICAL DATA**

Case: DO-213AB

Molding compound meets UL 94 V-0 flammability rating Base P/N-E3 - RoHS-compliant, commercial grade Base P/NHE3 - RoHS-compliant, AEC-Q101 qualified

**Terminals:** Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102

50 auffin manta IECD 001 alan

E3 suffix meets JESD 201 class 1A whisker test, HE3 suffix meets JESD 201 class 2 whisker test

**Polarity:** Two bands indicate cathode end 1<sup>st</sup> band denotes device type 2<sup>nd</sup> band denotes voltage type

<b>MAXIMUM RATINGS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	BYM13-20	BYM13-30	BYM13-40	BYM13-50	BYM13-60	UNIT
DENOTES SCHOTTKY DEVICES: 1st BAND IS ORANGE		SGL41-20	SGL41-30	SGL41-40	SGL41-50	SGL41-60	
Polarity color bands (2 <sup>nd</sup> band) voltage type		Gray	Red	Orange	Yellow	Green	
Maximum repetitive peak reverse voltage		20	30	40	50	60	V
Maximum RMS voltage	V <sub>RMS</sub>	14	21	28	35	42	V
Maximum DC blocking voltage	$V_{DC}$	20	30	40	50	60	V
Maximum average forward rectified current (fig. 1)	I <sub>F(AV)</sub>	1.0				Α	
Peak forward surge current 8.3 ms single half sine-wave superimposed on rated load	I <sub>FSM</sub>	30					Α
Voltage rate of change (rated V <sub>R</sub> )	dV/dt	10 000				V/µs	
Operating junction temperature range	TJ	- 55 to + 125 - 55 to + 150				°C	
Storage temperature range	T <sub>STG</sub>	- 55 to + 150					°C

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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>A</sub> = 25 °C unless otherwise noted)									
PARAMETER	TEST CONDITIONS SYMI		SYMBOL	BYM13-20	BYM13-30	BYM13-40	BYM13-50	BYM13-60	UNIT
			STWIBOL		SGL41-30	SGL41-40	SGL41-50		ONIT
Maximum instantaneous forward voltage (1)	1.0 A		V <sub>F</sub>	0.50			0.70		V
Maximum reverse		T <sub>A</sub> = 25 °C		0.5					_
current at rated DC blocking voltage (1)		T <sub>A</sub> = 100 °C	I <sub>R</sub>		10		5	.0	mA
Typical junction capacitance	4.0 V, 1.0	O MHz	CJ	110		110 80		pF	

#### Note

<sup>(1)</sup> Pulse test: 300 µs pulse width, 1 % duty cycle

THERMAL CHARACTERISTICS (T <sub>A</sub> = 25 °C unless otherwise noted)							
PARAMETER	SYMBOL	BYM13-20	BYM13-30	BYM13-40	BYM13-50	BYM13-60	UNIT
PARAMETER		SGL41-20	SGL41-30	SGL41-40	SGL41-50	SGL41-60	
Maximum thermal resistance (1)	$R_{\theta JA}$	75					°C/W
iviaximum memai resistance (1)	$R_{\theta JT}$	30					C/VV

#### Note

<sup>(1)</sup> Thermal resistance junction to terminal, 0.24" x 0.24" (6.0 mm x 6.0 mm) copper pads to each terminal

ORDERING INFORMATION (Example)								
PREFERRED P/N	UNIT WEIGHT (g)	PREFERRED PACKAGE CODE	BASE QUANTITY	DELIVERY MODE				
SGL41-40-E3/96	0.137	96	1500	7" diameter plastic tape and reel				
SGL41-40-E3/97	0.137	97	5000	13" diameter plastic tape and reel				
BYM13-40-E3/96	0.137	96	1500	7" diameter plastic tape and reel				
BYM13-40-E3/97	0.137	97	5000	13" diameter plastic tape and reel				
SGL41-40HE3/96 (1)	0.137	96	1500	7" diameter plastic tape and reel				
SGL41-40HE3/97 (1)	0.137	97	5000	13" diameter plastic tape and reel				
BYM13-40HE3/96 (1)	0.137	96	1500	7" diameter plastic tape and reel				
BYM13-40HE3/97 (1)	0.137	97	5000	13" diameter plastic tape and reel				

#### Note

### **RATINGS AND CHARACTERISTICS CURVES**

 $(T_A = 25 \, ^{\circ}C \text{ unless otherwise noted})$ 

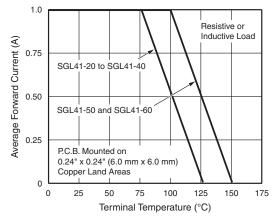


Fig. 1 - Forward Current Derating Curve

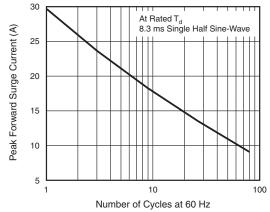


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

<sup>(1)</sup> AEC-Q101 qualified

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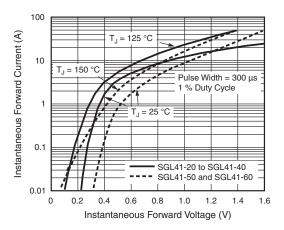


Fig. 3 - Typical Instantaneous Forward Characteristics

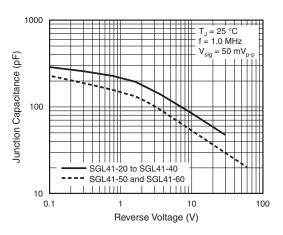


Fig. 4 - Typical Junction Capacitance

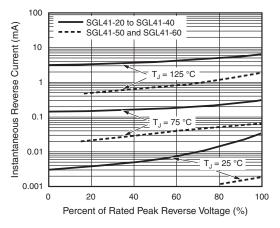
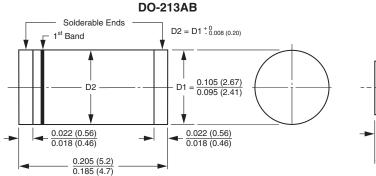


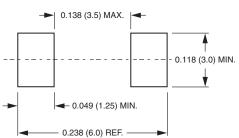
Fig. 2 - Typical Reverse Characteristics

#### **PACKAGE OUTLINE DIMENSIONS** in inches (millimeters)



1st band denotes type and positive end (cathode)

#### **Mounting Pad Layout**





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Revision: 02-Oct-12 Document Number: 91000